

Response Dated: May 29, 2007

Reply to Office Action of: February 28, 2007

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) A process for preparation of a dispersion of a self dispersing, synergistic poly(urethane-co-acrylic)-poly(urethane-co-acrylic) copolymer useful as coating material, said process comprises comprising the steps of:

a. treating a polyol, having molecular weight in the range of 500-3000, having general formula $(OH-R-OH)_n$, where R represents an alkyl group and n is any integer between 4 and 10, with 150 -200 mole % of a (cyclo)aliphatic or aromatic isocyanate-of (cyclo) aliphatic or aromatic type at a temperature in the range of 40-150°C. under a nitrogen atmosphere, for a period of minimum 2 hours to obtain an isocyanate terminated pre-polymer;

b. adding 50-100 mole %, based on the (cyclo)aliphatic or aromatic isocyanate, of an iniferter diol isocyanate, having essentially tetraphenylethane and 0.1-0.3 mol % of catalyst to the isocyanate terminated pre-polymer, in an organic solvent, under agitation at a temperature not exceeding 40°C. for a period in the range of 15-30 hrs to obtain an iniferter incorporated polyurethane;

c. treating 25-400% w/w of acrylic monomer, characterized essentially by a vinyl monomer selected from the group consisting of vinyl monomers containing carboxyl groups or sulfonic acid groups, with the iniferter incorporated polyurethane for a minimum of 12-hrs hours at a temperature in the range of 50-80°C. to obtain a urethane-co-acrylic polymer;

d. adding 0.01-0.1 mole % of base to the urethane-co-acrylic polymer, as formed in step (iii)(c), under agitation at a temperature in the range of 30-80°C. for a period of minimum 1-hr hour to obtain a slurry, and

e. dispersing the slurry in 150-200% v/v of water to obtain the dispersion of the poly(urethane-co-acrylic) copolymer-dispersion.

2. (Currently Amended) A process as claimed in claim 1, wherein the polyol used is selected from a group comprising, Polyethylene the group consisting of polyethylene glycol,

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polypropylene glycol, polyoxypropylene glycol, poly (tetramethylene oxide) glycol, and polycaprolactone diol.

3. (Currently Amended) A process as claimed in claim 1, wherein the (cyclo) aliphatic or aromatic isocyanate is selected from the group consisting of isocyanates used is selected from a group comprising, hexamethylene diisocyanate, isophorone diisocyanate, p-phenylene diisocyanate, toluene diisocyanate, and diphenylmethane diisocyanate.

4. (Currently Amended) A process as claimed in claim 1, wherein the organic solvent is selected from the group consisting of used is selected from a group comprising, dimethyl sulphoxide, dimethyl formamide, dimethyl acetamide, acetone, butan-2-one, carbon tetrachloride, and n-methyl-N-methyl pyrrolidone.

5. (Currently Amended) A process as claimed in claim 1, wherein the catalyst is selected from the group consisting of used is selected from a group comprising of triethylene diamine, piperazine, dibutyl tin dilaurate, stannous octoate, dioctyl tin dilaurate, and diaza bicyclo octane.

6. (Currently Amended) A process as claimed in claim 1, wherein the iniferter is selected from the group consisting of used is selected from tetraphenylethane diol and dithio carbamate.

7. (Currently Amended) A process as claimed in claim 1, wherein the acrylic vinyl monomer is selected from the group consisting of used is selected from a group comprising, acrylic acid, methacrylic acid, methylene succinic acid, and 4-styrene sulfonic acid.

8. (Currently Amended) A process as claimed in claim 1, wherein the base is selected from the group consisting of used is selected from primary amines, secondary amines, tertiary amines, and/or alkali metal hydroxide, and combinations thereof like triethyl amine, trimethyl amine, triisopropyl amine, N,N' dimethyl aniline, N,N' diethanol amine, NaOH and KOH, either individually or in combination.

9. (Currently Amended) A process as claimed in claim 1, wherein the said synergistic poly(urethane-co-acrylic) copolymer polyurethane polyvinyl polymer has cold crack resistance up to -15°C.

10. (Currently Amended) A process as claimed in claim 1, wherein the ~~said synergistic poly(urethane-co-acrylic) copolymer-polyurethane-polyvinyl polymer has film adhesion strength about 7.2 N/cm.~~

11. (Currently Amended) A process as claimed in claim 1, wherein the ~~said synergistic poly(urethane-co-acrylic) copolymer-polyurethane-polyvinyl polymer has rub fastness up to 4 dry.~~

12. (Withdrawn) A self dispersing water based synergistic polyurethane-polyvinyl block copolymer useful as coating material.

13. (Withdrawn) A polyurethane-polyvinyl block copolymer as claimed in claim 12, wherein the said polymer has cold crack resistance up to -15°C.

14. (Withdrawn) A polyurethane-polyvinyl block copolymer as claimed in claim 12, wherein the said polymer has film adhesion strength about 7.2 N/cm .

15. (Withdrawn) A polyurethane-polyvinyl block copolymer as claimed in claim 1, wherein the said polymer has rub fastness up to 4 dry.

16. (New) A process as claimed in claim 8, wherein the base is selected from the group consisting of triethyl amine, trimethyl amine, triisopropyl amine, N,N'-dimethyl aniline, N,N'-diethanol amine, NaOH, KOH, and combinations thereof.

17. (New) A process as claimed in claim 1, wherein the iniferter is tetraphenylethane diol.

18. (New) A process as claimed in claim 17, wherein the polyol is selected from the group consisting of polyethylene glycol, polypropylene glycol, polyoxypropylene glycol, poly(tetramethylene oxide) glycol, and polycaprolactone diol.

19. (New) A process as claimed in claim 18, wherein the poly(urethane-co-acrylic) copolymer has cold crack resistance up to -15°C, a film adhesion strength about 7.2 N/cm, and a rub fastness up to 4 dry.

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20. (New) A process as claimed in claim 19, wherein the vinyl monomer is selected from the group consisting of acrylic acid, methacrylic acid, methylene succinic acid, and 4-styrene sulfonic acid.